California Regional Water Quality Control Board
Los Angeles Region

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March 13, 2007

Mr. R.W. Lawhn
Environmental Director – West Region Operations
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COMMENTS ON REVISED POPOSAL FOR INFORMATION COLLECTION AND IMPINGEMENT MORTALITY AND ENTRAINMENT STUDY SAMPLING PLAN FOR RELIANT ENERGY ORMOND BEACH GENERATING STATION, OXNARD, CA NPDES PERMIT NO. CA0001198, CI-5619

Dear Mr. Lawhn:

Reference is made to the Revised Phase II 316(b) Proposal for Information Collection (PIC) and Impingement Mortality and Entrainment (IM&E) Characterization Study Sampling Plan (Sampling Plan) submitted by Reliant Energy (Reliant) for its Ormond Beach Generating Station (Ormond Beach), dated November 2006, and prepared by ENSR International.

The California Water Quality Control Board, Los Angeles Region (Regional Board) staff reviewed your proposal with respect to the requirements of the 316(b) Phase II rule as published on July 9, 2004 (69 FR 41576) and incorporated into the CFR at Parts 9, 122, 123, 124 and 125. We have the following comments:

GENERAL COMMENTS

1. The revised PIC and IM&E has been modified to incorporate many of the recommendations proposed by Regional Board staff. However, numerous comments made in the Regional Board's letter of March 3, 2006, have not been addressed – specifically those relating to baseline calculations and credits.
2. Reliant has expanded the discussion of historical studies to include information pertaining to the relevance and suitability of these studies to Ormond Beach.
3. The revised PIC is not well organized and occasionally lacks internal consistency. As was the case with the original 2005 PIC, the revised 2006 PIC contains numerous instances of unsupported claims (e.g., technology cost), specious calculations (e.g., IM/E reduction credits), and premature discussions of compliance (e.g., baseline calculations).

These issues cannot be addressed satisfactorily until the State Board and Regional Board have formulated policies with respect to once-through cooling and are better suited for discussion in the Comprehensive Demonstration Study (CDS), when a comprehensive set of monitoring data will be available for review. Some of the assumptions asserted by Reliant in the revised PIC might unreasonably narrow the focus of the compliance options to be evaluated as part of the CDS. Regional Board staff recommends that Reliant incorporate contingencies into the revised 2006 PIC that would allow it to address stricter requirements, if necessary.

SPECIFIC COMMENTS

Executive Summary

Our comments on issues raised in the Executive Summary are addressed below in their relevant sections.

1.0 - Introduction

Page 1-2 of the revised 2006 PIC states that the Phase II rule allows flexibility in assessing compliance by granting the Director "the ability to discount 'unavoidable, episodic impingement or entrainment events' in the assessment of performance." The Regional Board has not yet determined how it intends to address compliance when a facility experiences an unavoidable entrainment or impingement event. However, adequate assessment of normal impingement rates, including known episodic events, is an essential requirement of the CDS. Robust and accurate data will help support any future claim that such episodic events are "unusual" for the Ormond Beach facility.

Our comments on other issues raised in the Introduction are addressed below in their relevant sections.

2.0 – Source Water Body Information

The discussion of the zone of hydraulic influence was confusing and insufficiently described in the original 2005 PIC. In the revised 2006 PIC, Reliant calculated area of influence estimates by using two different flow thresholds (page 2-3). When Reliant applied Regional Board staff's "default" approach, it concluded that "at a three mile radius, the velocity induced by the [cooling water structure] (CWIS) is less than 0.01% of the intake velocity." Using a second approach (i.e., assuming that the zone of hydraulic influence is the area in which the water velocity induced by the intake exceeds the ambient velocity), Reliant found that the zone of hydraulic influence includes a circular area at the end of the intake pipe with a radius of 113 feet (Figure 2-2).

This clarification satisfactorily addresses a concern raised by the Regional Board staff in our letter of March 3, 2006.

3.0 – Technologies and Operational Measures

As was the case with our review of the original 2005 PIC, Regional Board staff did not evaluate in detail the claims made in the revised 2006 PIC with respect to the effectiveness of any particular technology or operational measure at the Ormond Beach facility. This analysis is more appropriate as a component of the CDS. The PIC should serve simply as a preliminary screening of technologies that might be feasible and appropriate, thus warranting the more detailed of the CDS.

Comments relating to baseline calculation and credits against this baseline, as well as the definition of the CWIS, are integral to Reliant's PIC in that the assumptions made therein influence the methods and technologies discussed as compliance options. Reliant acknowledges this by stating "at this point this assessment [of baseline conditions] can only be made based on professional judgment but this assessment is still valuable as a tool to focus the nature of the CDS investigation." Regional Board staff agrees that the assessments are preliminary, but we disagree that they serve to focus the CDS investigation. In our opinion, these assessments may serve to narrow the scope of the CDS to an undesirable extent.

The CWIS at the Ormond Beach facility differs from the baseline configuration contained in the Phase II rule in two significant ways due to: 1) its offshore location; and 2) the use of a velocity cap. USEPA has considered velocity caps to be a generally effective technology when used to reduce impingement, but notes in the Technology Development Document associated with the Phase II rule that inclusion of any technology in the discussion cannot be construed to represent a determination of effectiveness at any particular facility.

Reliant bases its estimate of an 80 percent reduction in impingement mortality on USEPA's discussion and also notes that studies at Huntington Beach and El Segundo facilities conducted by Southern California Edison (SCE) demonstrated reductions of 80 to 90 percent. However, Regional Board staff believes that Reliant must show that such reductions are achieved by its own velocity cap at the Ormond Beach facility, or at a minimum, must demonstrate that studies conducted at other facilities are transferable to the Ormond Beach situation.

We note that velocity caps do not necessarily achieve the same level of performance in every case, regardless of the proximity of the facilities. For example, the San Onofre Nuclear Generating Station (SONGS) facility in San Diego operates two offshore intakes with velocity caps, each terminating at a depth of 32 feet approximately 3,000 feet from shore. The distance between the two velocity caps is no more than a few hundred feet. Given the similar location and operation of each intake, one would expect similar rates of impingement in both cases. However,

the intake for Unit 3 consistently impinges fish at a rate that is three to four times higher than for Unit 2 (SONGS PIC, SCE 2005, pp. A-10-11).

As with the impingement reduction estimate, Reliant also must demonstrate the validity of its estimate that the location of the CWIS terminus results in a 10 percent reduction in entrainment by presenting relative densities of entrainable organisms near the shoreline and in the vicinity of the velocity cap.

In general, where feasibility and potential effectiveness of different technologies and operational measures are discussed in the revised PIC, cost appears to be the primary basis for exclusion or inclusion in the CDS analysis. Table 3-3 evaluates each technology or operational measure in part by assessing whether costs are significantly greater than the USEPA estimate. Any discussion of estimated cost in the revised PIC is inappropriate; these evaluations should be conducted in the CDS and supported by detailed cost estimates, rather than simply by cost factors (e.g., as presented on page 3-9). Feasibility and effectiveness of a given technology or operational measure should serve as the primary basis for further study, rather than cost.

Evaporative cooling towers also were eliminated from further consideration because of expected costs and other environmental issues (e.g., consumptive use, salt drift, aesthetic impacts). As with other technologies, feasibility and effectiveness should form the basis for evaluation in the revised PIC, not cost. Unreasonable or "significantly greater" cost may serve as a basis for excluding a particular technology in the CDS, but true costs cannot be known or evaluated until and detailed review is completed and supporting documentation is presented. Furthermore, it is possible that environmental issues can be addressed effectively through technology modifications.

4.0 – Historical Study Review

Section 4.8 of the revised 2006 PIC contains a discussion of historic impingement and entrainment rates at Ormond Beach. The third paragraph of this discussion indicates that the historic studies used "standard sampling and analysis techniques that are appropriate for quantifying impingement and entrainment under the Rule." Additionally, this paragraph states that "these data are expected to be useful within the context of the Rule ..." For Regional Board staff to substantiate these statements, complete information on sampling methods, data analysis techniques (where appropriate), QA/QC procedures, and a discussion of relevance to the area under the influence of the Ormond Beach CWIS should be included in the CDS.

Section 4.8 of the revised PIC presents a bulleted list of assertions regarding IM/E rates, as well as fish and shellfish communities that Reliant believes are subject to impingement or entrainment by Ormond Beach. Reliant indicates that "original demonstrations in 1983 concluded that the operation of the CWIS did not result in an Adverse Environmental Impact (AEI) on the fisheries

in the vicinity." However, Regional Board staff does not believe that conclusions with respect to AEI made in 1983 will be relevant in the context of current Phase II implementation and compliance.

5.0 – Agency Consultations

Section 5.1 of the revised PIC states that "we [Reliant] believe that the NPDES agency generally concurred with the conclusion that no Adverse Environmental Impacts were being caused by the CWIS at the plant." As noted above, Regional Board staff does not believe that previous assessments of AEI made prior to the adoption of the Phase II rule will be relevant, unless documentation of the previous assessment conforms to the requirements of the Phase II rule and the data is presented for review. The revised PIC also states that communications with various agencies "have indicated that there are no state or federally listed species in the vicinity of the CWIS and therefore no potential impacts to protected species." Records of such communications should be supported by documentation (e.g., agency contacts and dates of consultations, written responses).

6.0 – Proposed Compliance Approach

No comments.

7.0 – Proposed Sampling Plan

The original 2005 PIC indicated that no data are available for use in characterizing the fish and shellfish in the vicinity of the CWIS, and Reliant proposed "not to perform sampling of ambient populations of ichthyoplankton or adults." In the revised 2006 PIC, Reliant has proposed to collect monthly ambient ichthyoplankton samples for six months. We assume that the adequacy of this sampling effort will be addressed in the CDS.

In the original 2005 PIC, Reliant proposed to collect monthly entrainment samples. The sampling frequency has been changed in the revised 2006 PIC to "twice monthly". Because the available entrainment data is limited, and since the populations of ichthyoplankton vary greatly both spatially and temporally, Regional Board staff believes that weekly or bi-weekly (when the plant is in operation) sampling would be more appropriate. The revised PIC has increased the diurnal frequency of sample collection (to four 6-hour samples over the 24-hour sampling period), and has improved the completeness of sampling and subsampling procedure descriptions.

Appendix A – Technology Review

Regional Board staff has not reviewed the claims made in this appendix in detail. We will reserve our analysis for the CDS.

Appendix B – Review of Pacific Ocean Fisheries

This appendix includes the same bulleted list presented in Section 4.8. The comments provided above for Section 4.8 also apply here.

Regional Board staff believes that statements asserting that the data are "of very high quality" are not appropriate (Page B-1). A thorough description of the QA/QC procedures and reporting of how data quality objectives were met will be more useful to defining the quality of the data.

Section 3.1.2 discusses both ambient physical and biological conditions, as well as several fish species in detail that are observed and/or expected to be impinged at the Ormond Beach or Mandalay facilities. It is unclear to Regional Board staff which species are expected at which of the two facilities or what similarities may be present between the two situations that would lead one to believe that similar fish species should be expected at both locations. In addition, these discussions contain no information about shellfish. Overall, the purpose of these discussions is unclear to Regional Board staff, given that the listed habits of the species are not discussed in relation to the potential for impact upon these species through operation of the Ormond Beach CWIS.

Correlations between impingement data sets for Ormond Beach and Proteus (Figures B-1 and B-2) for 14 target species appear to have been strongly influenced by one anomalous data point (potentially an outlier).

Appendix D – Sampling Plan

Page D-13 of the revised 2006 PIC states that "All biological sampling will be conducted in accordance with the QA/QC Plan" and it appears that QA/QC procedures are outlined in Appendix D (Section D.3). The complete QA/QC Plan (and any additions or revisions to the QA/QC summary in Appendix D) should be included in the CDS.

Elements of the proposed sampling plan are somewhat inconsistent with those proposed by similar coastal generating facilities elsewhere in the Southern California Bight. As required by the Phase II Rule, the methods proposed in the PIC are to "take into account the methods used in other studies performed in the source water body. Also, the methods must be consistent with any methods required by the Director." The original PIC proposed an IM/E sampling frequency of "approximately monthly". The revised 2006 PIC has proposed adjusting the sample frequency to

"twice monthly" for entrainment sampling and "twice monthly, as plant operations allow, during normal operation" for impingement sampling. Regional Board staff believes it would be advisable to change the proposed impingement sampling frequency to weekly to more adequately characterize the variability associated with impingement events, as well as to be consistent with sampling programs at other facilities in the area. Failure to adjust the sampling program in this manner may result in the need for additional data collection in the future.

If you have any questions, please contact David Hung at (213) 576-6616 or Michael Lyons at (213) 576-6718.

Sincerely,

Jonathan S. Bishop
Executive Officer

Cc: Mailing List

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